Claim Amendments

1. (original) A power management integrated circuit comprising:

a plurality of input terminals adapted to receive analog input voltage signals;

a plurality of analog input monitor circuits coupled to the input terminals, each analog input monitor circuit operable to compare an input analog voltage received at an input terminal against at least one voltage reference;

control logic coupled to the plurality of analog input monitor circuits and operable to generate at least one control signal in response to output signals from the analog input monitor circuits; and

at least one FET driver circuit coupled between the control logic and an output terminal and capable of controlling a power switch, the FET driver circuit operable in response to a control signal from the control logic,

wherein the control logic is operable, in response to an output signal from an analog input monitor circuit, to generate a ramp control signal that gradually turns on the FET driver circuit.

2. (original) The integrated circuit of claim 1, wherein at least one analog input monitor circuit is operable to compare an input analog voltage against high and low voltage references.

3. (original) The integrated circuit of claim 1, wherein at least one analog input monitor circuit is operable to compare a first input analog voltage received at a first input terminal to a second input analog voltage received at a second input terminal.

4. (original) The integrated circuit of claim 1, wherein at least one analog input monitor circuit is operable to monitor the voltage across an external resistor by comparing the voltages , and the control logic is operable to generate an indicator signal in response to the output signal from the analog input monitor circuit.

5. (original) The integrated circuit of claim 1 including a programmable voltage reference generator.

6. (currently amended) The integrated circuit of claim 1 including a plurality of FET driver circuits, wherein the control logic is programmable to generate a plurality of respective ramp control signals ~~for the plurality of driver circuits in response to output signals from the analog input monitor circuits~~ to turn on the FET driver circuits in a programmed sequence.

7. (canceled)

8. (original) The integrated circuit of claim 1, wherein the control logic is programmable.

9. (original) The integrated circuit of claim 8, wherein the control logic includes a plurality of macrocells.

10. (currently amended) The integrated circuit of claim 1, wherein the FET driver circuit is programmable.

11. (currently amended) The integrated circuit of claim 1 including a charge pump circuit coupled to the FET driver circuit.

12. (currently amended) The integrated circuit of claim 1, wherein the FET driver circuit comprises an FET driver circuit capable of driving a power MOSFET switch coupled to the output terminal.

13. (original) The integrated circuit of claim 1 including a serial interface coupled to the control logic and operable to support the I^2C protocol.

14. (currently amended) The integrated circuit of claim ~~1~~ 8 including nonvolatile programmable memory operable to store information for configuring a ~~programmable portion of the power management integrated circuit~~ the control logic.

15. (original) The integrated circuit of claim 1 including a watchdog timer coupled to the control logic and operable to monitor a time-based event.

16-24. (canceled)

25. (new) The integrated circuit of claim 1, wherein the control logic is operable to provide a plurality of selectable ramp control signals that vary in the rate at which they turn on the FET driver circuit.

26. (new) The integrated circuit of claim 1, wherein the ramp control signal is generally monotonic and linear.

27. (new) A power management integrated circuit comprising:

a plurality of analog input monitor circuits operable to sense a plurality of power supply output signals;

a plurality of FET driver circuits operable to a control, respectively, a plurality of power switches of the type coupled to output terminals of a power supply; and

programmable control logic coupled to the input monitor circuits and to the FET driver circuits, the control logic configurable to turn on the plurality of FET driver circuits in a programmed sequence and in response to output signals of the analog input monitor circuits.

28. (new) The integrated circuit of claim 27, wherein the control logic is programmable to provide ramp control signals that gradually turn on the FET driver circuits.

29. (new) The integrated circuit of claim 27, wherein the control logic is operable to provide a plurality of selectable ramp control signals that vary in the rate at which they turn on each FET driver circuit.

30. (new) The integrated circuit of claim 27 including nonvolatile programmable memory operable to store information for configuring the control logic.

31. (new) A power management integrated circuit comprising:

a plurality of FET driver circuits operable to a control, respectively, a plurality of power switches of the type coupled to output terminals of a power supply; and

programmable control logic coupled to the FET driver circuits, the control logic configurable to turn on the FET driver circuits in a programmed sequence,

wherein the control logic is operable, in response to sensing of power supply signals, to generate ramp control signals that gradually turn on the FET driver circuits in the programmed sequence.

32. (new) The integrated circuit of claim 31, wherein the control logic is operable to provide a plurality of selectable ramp control signals that vary in the rate at which they turn on each FET driver circuit.

33. (new) The integrated circuit of claim 31, wherein the FET driver circuits are programmable.

34. (new) The integrated circuit of claim 31 including nonvolatile programmable memory operable to store information for configuring the control logic.